

REMARKS**Status of Claims**

Claims 1-30 are pending after entry of this paper. Claims 4-5, 7-9, 14-17, 19, and 21-29 have been withdrawn without prejudice. Applicants reserve the right to pursue withdrawn claims in a divisional application. Claim 30 has been added. No new matter has been introduced by these amendments.

Claims 1, 2, and 3 have been amended to clarify that the DNA is an isolated DNA. Support may be found throughout the instant specification, for example, at page 21, last paragraph. Claim 1 has also been amended to delete “or a sequence containing part or whole of these sequences” and is now directed to DNA consisting of SEQ ID NO: 1 or the complementary sequence of SEQ ID NO: 1. Support may be found throughout the instant specification, for example at page 14, first paragraph. Claim 2 has been amended to specify “stringent conditions comprising hybridization at 65 °C and washing treatment at 65 °C with buffer solution containing $0.1 \times \text{SSC}$, 0.1% SDS.” Support may be found throughout the instant specification, for example, at page 14, last paragraph. Claim 3 has been amended to be directed to DNA which encodes a polypeptide consisting of the amino acid of SEQ ID NO: 2. Claims 1 and 3 have been amended to properly refer to a unique sequence.

Claims 2, 3, 6, 10-13, 18, and 20 have been amended to replace the term “and/or” with “or”.

Claim 6 and 13 have been amended to place the claims in proper multiple dependent format.

Claim 18 has been amended to recite “A probe for diagnosing the functionality of the glucose or fructose transporter” and to delete the phrase “whole or part of” and now recites a

probe for diagnosing the functionality of the transporter comprising an antisense strand of the base sequence according to claim 1.

Claim 20 has been amended to be directed to a kit for diagnosing the functionality of the glucose or fructose transporter comprising the probe according to claim 18. Support may be found throughout the instant specification, for example at page 16, last paragraph.

New claim 30 is directed to scope of original claim 13 no longer encompassed by claim 13 as amended.

No new matter has been introduced by these amendments. Reconsideration and withdrawal of the pending rejections in view of the above claim amendments and below remarks are respectfully requested.

Response to Claim Objections

Claims 1-3, 6, 10-13, 18, and 20 have been objected to for minor informalities such as improper multiple dependent format, use of “and/or,” improper reference to a unique sequence as described by the Examiner of page 10 of the Office Action. In view of the amendments as described above, applicants respectfully submit that the claims are proper. Reconsideration and withdrawal of the claim objections are respectfully requested.

Response to Rejections under 35 U.S.C. §101

Claims 1-3 stand rejected under 35 U.S.C. §101, as allegedly being directed to non-statutory subject matter. Specifically, the Examiner contends that the claims as written do not sufficiently distinguish over a DNA that exists naturally. The applicants respectfully disagree. However, to expedite prosecution and without disclaimer of or prejudice to the subject matter recited therein, the applicants have amended claims 1-3 to recite “an isolated DNA,” as

recommended by the Examiner (Office Action, page 3). Support may be found throughout the instant specification, for example, at page 21, last paragraph. Applicants respectfully assert that claims 1-3 are directed to statutory subject matter. Reconsideration and withdrawal of the 35 U.S.C. §101, non-statutory subject matter rejections are respectfully requested.

Response to Rejections under 35 U.S.C. §112, 1st paragraph

Claims 1-3, 6, 10-13, 18, and 20 stand rejected under 35 U.S.C. §112, first paragraph, for lack of enablement. Specifically, the Examiner contends that the specification does not provide enablement for the instantly claimed genus of DNA molecules and probes. (Office Action page 4). The applicants respectfully disagree. However, to expedite prosecution and without disclaimer of or prejudice to the subject matter recited therein, the applicants have amended claim 1 to be directed to an isolated DNA consisting of SEQ ID NO: 1 or its complementary sequence, claim 2 to be directed to an isolated DNA that hybridizes with the DNA of claim 1, and claim 3 to be directed to an isolated DNA which encodes a polypeptide consisting of SEQ ID NO: 2. Support for these amendments may be found throughout the instant specification, as described in the status of claims section above. Applicants respectfully assert that claims 1-3, 6, 10-13, 18, and 20 are sufficiently enabled by the specification. Reconsideration and withdrawal of the 35 U.S.C. §112, first paragraph, enablement rejections are respectfully requested.

Claims 1-3, 6, 10-13, 18, and 20 stand rejected under 35 U.S.C. §112, first paragraph, for lack of written description. Specifically, the Examiner alleges that the claims as written contain subject matter which was not described in the specification to show that the inventors had possession of the invention at the time of filing. The applicants respectfully

disagree. However, to expedite prosecution and without disclaimer of or prejudice to the subject matter recited therein, the applicants have amended claim 1 to be directed to an isolated DNA consisting of SEQ ID NO: 1 or its complementary sequence, claim 2 to be directed to an isolated DNA that hybridizes with the DNA of claim 1, and claim 3 to be directed to an isolated DNA which encodes a polypeptide consisting of SEQ ID NO: 2. Applicants respectfully assert that claims 1-3, 6, 10-13, 18, and 20 comply with the written description requirement.

Reconsideration and withdrawal of the 35 U.S.C. §112, first paragraph, lack of written description rejections are respectfully requested.

Response to Rejections under 35 U.S.C. §112, 2nd paragraph

Claims 1, 2, 6, 10-13, 18, and 20 have been rejected under 35 U.S.C. §112, second paragraph for allegedly being indefinite. Specifically, with respect to claim 1, the Examiner contends that it is unclear if the phrase “its complementary sequence” is referring to the complementary sequence of SEQ ID NO:1 or the complementary sequence of the DNA (Office Action, page 9). The claim amendments directing the claim to the DNA consisting of the sequence of SEQ ID NO: 1 or the complementary sequence of SEQ ID NO: 1 specify that the complementary sequence is that of SEQ ID NO: 1.

The Examiner contends that claim 2 reciting “a stringent condition” is ambiguous (Office Action, page 9). The applicants respectfully disagree. However, to expedite prosecution and without disclaimer of or prejudice to the subject matter recited therein, the applicants have amended claim 2 to include “a stringent condition comprising hybridization at 65 °C and washing treatment at 65 °C with buffer solution containing $0.1 \times$ SSC, 0.1% SDS”. Support may be found throughout the instant specification, for example, at page 14, last paragraph.

Additionally, the Examiner further alleges that the preamble of claim 18 reciting “a probe for diagnosing glucose and/or fructose transporter function” is indefinite (Office Action, page 9). The applicants respectfully disagree. However, to expedite prosecution and without disclaimer of or prejudice to the subject matter recited therein, the applicants have amended claim 18 to be directed to a probe for diagnosing the functionality of the glucose or fructose transporter where the probe is an antisense strand of the base sequence according to claim 1. The scope of the preamble is clear and unambiguous.

Furthermore, the Examiner contends that claim 20 is sufficiently ambiguous that it is unclear to what the claim is directed. The applicants respectfully disagree. However, to expedite prosecution and without disclaimer of or prejudice to the subject matter recited therein, the applicants have amended claim 20 to recite a kit for diagnosing the functionality of the glucose or fructose transporter where the kit comprises the diagnostic probe according to claim 18. Support may be found throughout the instant specification, for example at page 16, last paragraph. Applicants respectfully request reconsideration and withdrawal of the indefiniteness rejection under 35 U.S.C. §112, second paragraph.

Response to Rejections under 35 U.S.C. §102

Claim 1 has been rejected under 35 U.S.C. §102(e) as being allegedly anticipated by Isogai, et al. (U.S. Patent No. 6,943,241 B2, September 13, 2005; 102(e) date: January, 25, 2002). The Examiner alleges that Isogai, et al. teach a DNA comprising part of SEQ ID NO: 1. The applicants have amended claim 1 to be directed to an isolated DNA consisting of SEQ ID NO: 1. Isogai, et al. does not teach the entire sequence of SEQ ID NO: 1 and hence does not anticipate the invention as recited in claim 1. Reconsideration and withdrawal of the rejection under 35 U.S.C. §102 are respectfully requested.

Dependent Claims

The applicants have not independently addressed all of the rejections of the dependent claims. The applicants submit that for at least similar reasons as to why independent claims 1 and 3 from which all of the dependent claims 2, 6, 10-13, 18, 20, and 30 depend are believed allowable as discussed *supra*, the dependent claims are also allowable. The applicants, however, reserve the right to address any individual rejections of the dependent claims and present independent bases for allowance for the dependent claims should such be necessary or appropriate.

CONCLUSION

Based on the foregoing amendments and remarks, the applicants respectfully request reconsideration and withdrawal of the pending rejections and allowance of this application. The applicants respectfully submit that the instant application is in condition for allowance. Entry of the amendment and an action passing this case to issue is therefore respectfully requested. In the event that a telephone conference would facilitate examination of this application in any way, the Examiner is invited to contact the undersigned at the number provided. Favorable action by the Examiner is earnestly solicited.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. **13-4500**, Order No. 4439-4034.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. **13-4500**, Order No. 4439-4034.

Respectfully submitted,
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By: _____


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